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that rock fissures had been opened could not be regarded as resting upon a valid basis.

Observation has shown that in the salt marsh lands of the coast the underlying portions of the sod are continually undergoing decay with the formation of large quantities of sulphuretted hydrogen, with which there must also be associated certain amounts of the light carburetted and possibly also of the phosphuretted hydrogen. Personal experience has shown that such gases are stored in the decaying turf in large quantities, being often held in pockets, so that when the turf is cut they may escape in such volume as to drive one away for the time. It is also known that any decaying vegetation will produce similar results, and two explanations were, therefore, suggested as offering a solution of the problem: (1) that there was an area of buried marsh such as is known to exist in places along the coast, and that its decay had given rise to combustible gases; (2) that the accumulations of organic debris in the formation of the beach had been productive of the results observed.

That one or both of these causes would offer an adequate explanation was adopted as a tentative hypothesis, and an examination of the beach was proceeded with. It was found that the superficial layer to a depth of about one inch, consisted of freshly washed sand with which there were mingled fragments of marine plants and even fragments of land plants. Successive accumulations are thus transferred from the superficial layer to that below, which was found to be about six inches in thickness, and to consist of sand filled with all sorts of organic debris, including marine plants, fragments of wood and bones. Moreover, this layer was perfectly black, and when washed it exhibited very small, carbonized fragments of *zostera* and other marine plants, fragments of wood with a distinct surface charring, and bones of animals, the surface of which was like ebony. Below this layer there was a deposit of beach pebbles mingled with sand, and as this formation continued to the limits which it was possible to reach with the implements at hand—about two feet

—the conclusion was reached that such was the lower construction of the beach and that no buried marsh was present. This naturally led to the final conclusion that the six-inch layer, rich in organic matter, was entirely responsible for the production of inflammable gases which had been accumulated there until favorable conditions for their release were presented.

An explanation of the spontaneous combustion of these gases is not difficult. The light carburetted and the phosphuretted hydrogen are well known to ignite spontaneously wherever produced in marsh lands, thus giving rise to the well-known 'will-o'-the-wisp,' 'Jack-o'-lantern' and the *ignis fatuus*, 'corpse candle,' etc., which are well known to the folk-lore of England. That sulphuretted hydrogen was also present has been abundantly shown, and since this would naturally be set on fire by the other gases, it is possible to reach a complete explanation of a phenomenon which must have occurred at more or less frequent intervals in the past, though escaping observation through lack of combination in those circumstances which would bring it under direct notice. It would seem, however, that the possibility of such combustion on a rather large scale offers a most reasonable explanation of many forest fires, the origin of which it has hitherto been impossible to account for in a satisfactory manner.

D. P. PENHALLOW.

BOTANICAL LABORATORY,
MCGILL UNIVERSITY,
November 17, 1905.

'THE COLLAPSE OF EVOLUTION.'

TO THE EDITOR OF SCIENCE: One of your correspondents, two months or so ago, sent you an outline of an argument against the doctrine of evolution delivered as an address by Rev. L. T. Townsend, professor emeritus in the theological department of Boston University. The paper may now be had as a separate.¹ This pamphlet contains so much in the way of new and surprising information, that it is

¹ Bible League, Credo Series, No. 2, National Magazine Co., Boston and American Bible League, 82 Bible House, N. Y.

clearly 'one of the books which no [scientific] gentleman's library should be without.'

The theory of evolution being now, as Professor Townsend informs us, 'discredited and abandoned by the best scholarship of the world,' it is high time that the 'American university professors' who still continue to deceive the people on this important question, should be called to account. "Were these professors clergymen, would it be discourteous to characterize such an exhibition as a piece of superb ignorance or insolence?" 'We are a little behind the times on these questions in this country as compared with England, France and Germany, though ahead in almost everything else'; and 'the most thorough scholars, the world's ablest philosophers and scientists, with few exceptions, are not supporters, but assailants of evolution,' so that American men of science will do well to heed this clarion call from Boston University. "If these facts as to the attitude of leading scientists, and if this revolution of opinion in Germany are known, and certainly they ought to be, then can the silence of our American evolutionists be looked upon as honest or manly?"

The trouble with us over here in the wilds of North America is that we have been making fine-spun distinction where there is no real unlikeness. "What essential or fundamental difference is there between Darwinism and any scheme of evolution that may be or can be proposed?" Professor Townsend repudiates with scorn the suggestion that he confuses evolution and Darwinism. They are the same thing; and every naturalist who questions the all-sufficiency of selection becomes *ipso facto* an advocate of special creation. De Vries, among others, has his name called right out in meeting on the strength of that eminent scientific authority, the *Literary Digest*.

A muddle-headed chap the evolutionist—or the Darwinian—is at best: see how he gets fooled by the Tertiary horse! "While there is some resemblance between these four-toed animals and the modern horse, as there are some resemblances between a cow and a crow, a man and a mouse, each having a head with its eyes, nose and ears, and each having feet

with which to walk, yet these resemblances furnish no more evidence of organic connections and transmutations in the one case than in the other—that is no evidence at all." But then what is to be expected of persons who employ "such terms as 'bathiosm,' 'cosmic ether,' 'cosmic emotion,' 'germplasm,' 'pangenesis,' 'protoplasm,' 'growth force,' 'vital fluid' and the like. * * * It should be said, however, that not for five or ten years have these terms, once potent on the lips of scientists and philosophers, been employed seriously by any reputable writer on these subjects."

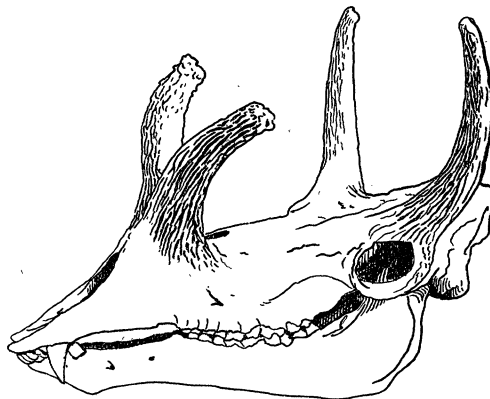
After this warning, if any reader of SCIENCE is caught saying 'protoplasm,' it will be his own fault!

E. T. BREWSTER.

SPECIAL ARTICLES.

A NEW MIOCENE ARTIODACTYL.

AMONG several discoveries made in the Daimonelix beds (Loup Fork) of Sioux County, Nebraska, the most striking one of the season seems to be that of a new four-horned ancestral antelope, *Syndyoceras cooki*, the skull of which is herein figured and briefly described. The discovery was made by Mr.



Syndyoceras cooki, Barbour, 1905.

Harold G. Cook, a former Lincoln student and a member of the Morrill geological expedition of 1905.

The specimen, which gives promise of being complete, was found on the west bank of the Niobrara River in the bluffs bordering the extensive ranch of Mr. James Cook, Agate,